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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,732	04/16/2004	Michael S. Danielson	19931/14	1352
7590	08/07/2006			EXAMINER LE, LANA N
Brian L. Michaelis, Esq. Brown Rudnick Berlack Israels LLP BOX IP One Financial Center Boston, MA 02111			ART UNIT 2618	PAPER NUMBER

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/826,732	DANIELSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Lana N. Le	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 4/16/04
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION**

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-3, drawn to circuitry of a radio receiver, classified in class 455, subclass 307.
  - II. Claims 4-5, drawn to the sampling rates in which a radio signal is to be sampled, classified in class 375, subclass 346.
2. The inventions are distinct, each from the other because of the following reasons:  
Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the apparatus as claimed can be used in another process of using the apparatus and the sampling rate method can be practiced with another apparatus.
3. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02) and classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with applicant's representative, Jason Moore, on 7/13/06 a provisional election was made with traverse to prosecute the invention of I, claims 1-3. Affirmation of this election must be made by applicant in replying to this

Office action. Claims 4-5 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dick et al (US 6,600,788) in view of the admitted prior art and further in view of Petrus et al (US 2001/0,031,022).

Regarding claim 1, Dick et al disclose an apparatus (fig. 6) for reducing radio frequency interference in a system that includes a radio receiver, the apparatus comprising:

a requantizer (12) for outputting a requantized signal based on an input signal ( $x(n)$ );

a first filter (H<sub>sub0</sub>(z) 13a) of a first order (even ordered filter), said first filter for receiving said requantized signal and outputting a first filtered signal;

a second filter (H<sub>sub1</sub>(z) 13b) of a second order higher than the first order (odd ordered filter), said second filter (13b) for receiving said requantized signal and outputting a second filtered signal;

a selection means (switching at 61) for alternatively selecting one of the first and second filters (13a, 13b), said second filter (13b) is selected, and an adder (62) for adding the output of the selected filter to said input signal (figs. 6-7; col 8, lines 15-37). Dick et al do not disclose adding the noise shaper output to the input signal. The admitted prior art discloses adding the noise shaper output (from 12) to the input signal (noise shaper input; fig. 1) in a feedback configuration (page 3, lines 3-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the noise shaper output to the input signal in order to adjust the incoming noise based on the previous samples or taps used in the filter of the noise shaper as suggested by the admitted prior art. Dick et al and the admitted prior art do not disclose selecting the lower order filter wherein when said radio receiver is in use. However, Petrus et al disclose a zero order filter is used to keep the bit error rate at a low level (para. 126). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the lower ordered filter when the radio receiver is in use in order to reduce noise output by low bit error rate as suggested by Petrus et al.

Regarding claim 2, Dick et al, the admitted prior art, and Petrus et al disclose the apparatus of claim 1, wherein Dick et al disclose the apparatus is a variable-order noise shaper (60). Dick et al and Petrus et al do not explicitly disclose said noise shaper is of an order corresponding to an order of the selected filter. However, it is notoriously old and well known in the art to have the order of the noise shaper corresponds to the order of the selected filter as is disclosed in the admitted prior art. The admitted prior art

disclose the order of the noise shaper 10 corresponds to the order of the FIR filter 12 (page 3, lines 10-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the order of the noise shaper corresponds to the order of the selected filter in order to base the order of the noise shaper filtering unit to the order of the selected filter with a certain number of taps since the noise shaper selects only that one filter and not both filters as suggested by the admitted prior art.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dick et al (US 6,600,788) in view of the admitted prior art, Petrus et al (US 2001/0,031,022) and further in view of Brennan (US 2004/0,037,371).

Regarding claim 3, Dick et al, the admitted prior art, and Petrus et al disclose the apparatus of claim 1, wherein the radio receiver is an amplitude modulation (AM) tuner. Brennan discloses the radio receiver is an amplitude modulation (AM) tuner (paras. 25-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the requantizer in the form of sigma delta modulator of Dick et al be within an AM tuner of Brennan in order to allow the user to listen to a radio tuned AM received channel with less noise.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N. Le whose telephone number is (571) 272-7891. The examiner can normally be reached on M-F 9:30-18:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lana Le

*Lana M. Le*  
7-15-09  
LANA LE  
PRIMARY EXAMINER